



THE  
ONTARIO WATER RESOURCES  
COMMISSION  
WATER POLLUTION SURVEY  
VILLAGE OF WOODBRIDGE

1964

RECEIVED COMMISSION

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Report on

a

WATER POLLUTION SURVEY

of

the

VILLAGE OF WOODBRIDGE

Division of Sanitary Engineering

Ontario Water Resources Commission

November 1964

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## INTRODUCTION

A follow-up inspection was made to review the water pollution problems in the Village of Woodbridge. All actual or potential sources of pollution were investigated and samples were collected from the outfalls discharging wastes to the Humber River.

Mr.W.H.Young, Village Clerk, was interviewed on this occasion.

## GENERAL

The Village of Woodbridge, with an assessed population of 2,343 is located about 16 miles north-west from the centre of Toronto. The southern boundary of Woodbridge runs parallel to the northern boundary of Metropolitan Toronto for a distance of approximately 6,000 feet.

The municipality is largely residentially developed with very little industry.

The village lies in the Development Zone of the Metropolitan Toronto and Region Conservation Authority as per the report on Pollution Control and Recreation in the Metropolitan Toronto region, June 1963.

## WATER SUPPLY

There is a municipal water works system in Woodbridge which obtains its supply from four drilled wells. In addition to serving the village proper, the system provides water to an adjacent area known as Pine Grove. The latter is situated to the north-east of Woodbridge in the Township of Vaughan.

## DRAINAGE

Woodbridge lies partly in the watershed of the Humber River and partly in that of Robinson's Creek.

The main branch of the Humber River flows in a generally southerly direction through Woodbridge. The East Humber River joins the main branch just north of the Pine Street bridge.

Robinson's Creek, which rises to the north-west of Woodbridge, joins the Humber River just above Steeles Avenue. The creek flows through the north westerly part of Woodbridge and then travels west of, and roughly parallel to, the westerly limits of the village.

## SEWAGE DISPOSAL

### Woodbridge Developments Limited

This subdivision is located on the north side of Gordon Drive, west of Eighth Avenue. It is comprised of 51 single family residences and 24 multiple family dwellings.

This area is served with a system of sanitary sewers. The sewage from the subdivision is given treatment by means of a private water pollution control plant located in the north-west section of the Robinson Cotton Mills property. It was placed into service in September 1955.

Sewage treatment facilities consist of a septic tank with a liquid capacity of 9,100 gallons and two effluent sand filters, each 60 feet long by 45 feet wide. The septic tank

effluent is chlorinated at the outlet chamber and flows through an 8-inch  $\phi$  cast iron pipe to the sand beds. There, the underdrain system carries the effluent to the 8-inch  $\phi$  cast iron collection header and the 15-inch  $\phi$  outfall sewer. The latter empties into a nearby stream referred to in this report as Robinson's Creek.

#### Pine Street Sanitary Sewer

In 1951, a 12-inch  $\phi$  sanitary sewer approximately 600 feet in length was installed on Pine Street West from Wallace Street to the CN tracks. To date this sanitary sewer has not been used.

#### Humber River - Woodbridge Channel

Channelization work involving straightening the Humber River and increasing the flow capacity throughout Woodbridge was conducted in 1962. This work was authorized by the Metropolitan Toronto and Region Conservation Authority as part of the flood control programme on the Humber River watershed.

In 1962, a road called Islington Avenue was constructed on the east side of the municipality. At this time a storm sewer was constructed on Pine Street, east from Wallace Street to the Humber River.

### Disposal of Domestic Sewage

The sanitary sewage from the greater part of Woodbridge is disposed of by way of private septic tank systems. Due to the poor absorption qualities of the soil, ponding of sewage from defective septic tank systems occurs in Woodbridge.

### SOURCES OF POLLUTION

#### Municipal Storm Sewer Outlets

There are a number of storm sewer outlets in Woodbridge discharging into the Humber River either directly or via surface ditches.

A considerable flow was discharging into the Humber River from the 41-inch  $\phi$  storm sewer on Pine Street designated as H-17.0W. The analyses of the samples collected from this storm sewer revealed the waste contained high organic and bacterial concentrations.

Wastes, characteristic of septic tank effluents, were discharging into an open ditch from a storm sewer outlet south of Pine Street and east of Wallace Street. There are at least three private drain connections to this ditch and these were also discharging wastes comparable to septic tank effluents. The ditch appears to terminate near the bank of the river, and there was no evidence of any of the wastes from the ditch reaching the river at the time of inspection.



### Industrial Waste Outlets

M.L.Snyder and Sons Limited - This plant is on the south side of Pine Street along the west bank of the Humber River. It is engaged in the manufacture of rubber products such as toy balloons, gloves, waterproof clothing, etc.

The dipping forms, which contain a coating of calcium nitrate and snow floss, are washed down after the rubber products are removed. This rinse water, which is highly discoloured at times, is discharged to the bank of the Humber River. The discharge of waste from this plant was insufficient to sample at the time of the examination.

Robinson Cotton Mills Limited - Reportedly, this plant is not operating. The waste stabilization pond constructed was empty and the buildings appeared unoccupied.

### LABORATORY RESULTS

Samples were collected from the Humber River, Robinson Creek and two outfalls and submitted to the Ontario Water Resources Commission laboratory.

The analyses employed in this investigation to assess the quality of the surface water and waste discharges are as follows:

#### Biochemical Oxygen Demand (BOD)

The BOD of sewage, polluted waters, or industrial wastes, is the oxygen required for stabilization (natural purification in a stream) of the decomposable organic matter of

chemical material by aerobic biochemical action. Unless otherwise noted, a five-day BOD determination with incubation of 20°C. is reported. A high BOD is indicative of organic or chemical pollution. In natural water the BOD concentration should be less than four (4) parts per million.

#### Suspended Solids

These results are reported in parts per million and indicate the measure of undissolved solids of organic or inorganic nature. Where suspended solids values, ascertained by a quantitative analyses, approach 20 parts per million or less, laboratory difficulties usually result in these values being determined as turbidity a qualitative analysis, which is reported in turbidity units.

#### Membrane Filter Coliform Count

The membrane filter technique is employed to obtain a direct enumeration of coliform organisms and is reported per 100 millilitres. The presence of coliforms indicates pollution from human or animal excrement, or from some non-faecal forms. A membrane filter coliform count in excess of the desirable upper limit of 2,400 organisms is considered to render the water undesirable for bathing purposes.

### OWRC Water Quality Objectives

The following objectives are for all waters in the Province of Ontario:

<u>Item</u>	<u>Concentration</u>
5-day BOD	not greater than 4 ppm
MF Coliform Count	not greater than 2400 coliforms/100ml
Phenol - average	2 ppb
maximum	5 ppb
pH	6.7-8.5
Iron	0.3 ppm

Adequate protection for these waters, except in certain specific instances influenced by local conditions, should be provided if the following waste discharge concentrations are obtained:

<u>Item</u>	<u>Concentration</u>
5-day BOD	not greater than 15 ppm
Suspended Solids	not greater than 15 ppm
Phenol	not greater than 20 ppb
pH	5.5 to 10.6
Iron	not greater than 17 ppm
Oil	not greater than 15 ppm

### Pine Street 41-inch $\phi$ Storm Sewer - H-17.0W

The chemical analysis of the sample collected from the waste discharge revealed BOD and suspended concentrations of 24 and 23 ppm respectively. The bacterial examination indicated there were 11 million coliform organisms present.

### Humber River

The sample collected from the Humber River upstream from the storm sewer was satisfactory, while the sample collected downstream exceeded the Commission's objectives for BOD and coliform organisms.

Robinson's Creek - HRH - 16.9

The chemical analysis of the sample obtained from Robinson's Creek at Highway #7 bridge revealed a BOD in excess of the OWRC maximum objective. There were 126,000 coliform organisms present.

Woodbridge Developments Limited WPCP Outfall- HR-17.3T

The effluent from the water pollution control plant is discharged to Robinson's Creek near the Monsanto Canada Limited plant. The laboratory results of the samples collected from the plant effluent at the time of this inspection were in excess of the Commission's maximum objectives of not greater than 15 ppm for both BOD and suspended solids. There were 118,000 coliform organisms present.

An 8-hour composite sample of the plant effluent is submitted to the Commission laboratory each month.

The results of the analyses performed on these samples indicate that BOD and suspended solids concentrations in the effluent exceed the Commission's objective of 15 ppm of BOD and suspended solids. However, the percentage removals of BOD and suspended solids are typical for this type of installation.

COMMENTS

It may be concluded that the wastes being discharged from the Village of Woodbridge deteriorate the quality of the water in the Humber River and Robinson's Creek.

A proposal to accept an area to include Woodbridge, parts of the Township of Vaughan and a strip of land between Steele's Avenue and the new CNR line from Highway No.400 into the proposed extension of the Humber-Thistletown sanitary trunk sewer was adopted by Metro Council in March 1960. Metropolitan Toronto is willing to take the sewage from a population of 7,500 in addition to industrial wastes from 400 acres of industrial land.

The Village of Woodbridge proposed sewage works project includes a sanitary trunk sewer extending from the municipality to the Metropolitan Toronto sewerage system at Steeles Avenue. It is understood that the MTRCA supports this project.

The treatment provided by the water pollution control plant serving the Woodbridge Developments Limited Subdivision is inadequate. To provide the treatment necessary to achieve the Commission's objective probably would be more expensive than connecting to the municipal sewage system. Therefore, it is suggested that this area be included in the proposed works.

#### SUMMARY

A water pollution survey of the Village of Woodbridge was made on November 24, 1964. There was evidence of polluting wastes being discharged to the Humber River and Rainbow (Robinson's) Creek. The laboratory results of samples collected from the outfalls and the watercourses are appended to this report. The most recent results indicate that the bacterial

and chemical contents of the waste discharges and the streams are in excess of the Commission's maximum objectives.

The Village of Woodbridge proposed sewage works project should be implemented forthwith. The Woodbridge Developments Limited Subdivision should be included in the sewage system.

RECOMMENDATION

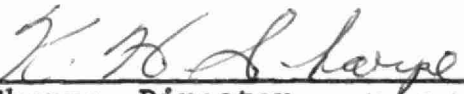

The Village of Woodbridge should proceed with the proposed sewage works project.

All of which is respectfully submitted,

District Engineer: \_\_\_\_\_

  
H. Browne

Approved by: \_\_\_\_\_

  
K.H. Sharpe, Director 

Prepared by: D.A.M. Wilson

<u>Sampling Point No.</u>	<u>Location and/or Description</u>	<u>Date</u>	<u>5-day BOD</u>	<u>Solids Total</u>	<u>Susp.</u>	<u>Diss.</u>	<u>Turbidity in Silica Units</u>	<u>MF Coli- form Count /100 ml</u>	<u>Est. DWF (gpm)</u>
H-17.1	Humber River at up- stream side of Pine St. bridge	Sept.12/62	1.0	290	--	--	18	2,000	
		Nov.24/64	1.6	320	26	294		370	
H-17.0	41-inch $\phi$ storm sewer outlet to Humber River	Sept.12/62	68	706	53	653		2,490,000	
		Oct.14/64	22	808	22	786		3,300,00	12
		Nov.24/64	24	1,114	23	1,091		11,000,000	10
H-17.0	Humber River down- stream from 41-inch $\phi$ storm sewer outlet	Sept.12/62	1.8	264	--	--	23	40,000	
		Nov.24/64	32	1,146	27	1,119		3,200,000	
H-16.6	Humber River up- stream side of Hwy.No.7 bridge	Jan.27/62	4.4	580	--	--	240	11,000	
		Sept.12/62	1.8	292	--	--	24	1,290	
		May 9/63	3.0	372	--	--	12.5	390	
		Sept.9/64	0.6	304	25	279		60,000	
HRH-17.3T	Woodbridge Develop- ments Ltd. Subd. WPCP effluent to Robinson's Creek	June 11/63	61	856	17	839			
		Oct.18/63	120	832	18	814			
		Nov.27/63	96	940	28	912			
		Feb.26/64	195	924	78	846			
		May 4/64	126	888	92	796			
		June 4/64	82	1,104	32	1,072			
		July 9/64	96	1,014	58	956			
		Aug.12/64	74	980	34	946			
		Sept.8/64	130	1,000	23	977			
HRH-16.9	Robinson's Creek at upstream side of Highway No.7 bridge	Nov.24/64	132	870	40	830			
		Jan.27/62	225	3,126	--	--	200	10,000	
		Sept.12/62	35	2,438	--	--	14	2,170,000	
		May 9/63	2.9	498	--	--	3.1	8,700	
		Sept.23/64	7.6	616	15	601		440,000	
		Nov.24/64	12	690	34	656		126,000	





**LEGEND**

H-16.6 SAMPLING POINT SHOWING STREAM AND MILEAGE

HE-16.9 OUTFALL SAMPLING POINT SHOWING MILEAGE

W-2 TYPE OF OUTFALL

D - DITCH

I - INDUSTRIAL

S - SANITARY

W - STORM SEWER

ONTARIO WATER RESOURCES COMMISSION

**VILLAGE OF WOODBRIDGE**

**WATER POLLUTION SURVEY**

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